Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Big Otter Creek and Tributary to Big Otter Creek

Waterbody Segment at a Glance:

Counties: Henry and St. Clair
Nearby Cities: Brownington
Length of impairment:
- **Big Otter Creek:** 1.0 mile
- **Tributary:** 1.0 mile

Pollutant: pH
Source: Big Otter coal area

TMDL Priority Ranking: Post reclamation water quality and 303(d) status to be determined.

Description of the Problem

Beneficial uses of Big Otter Creek and Tributary

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption.

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

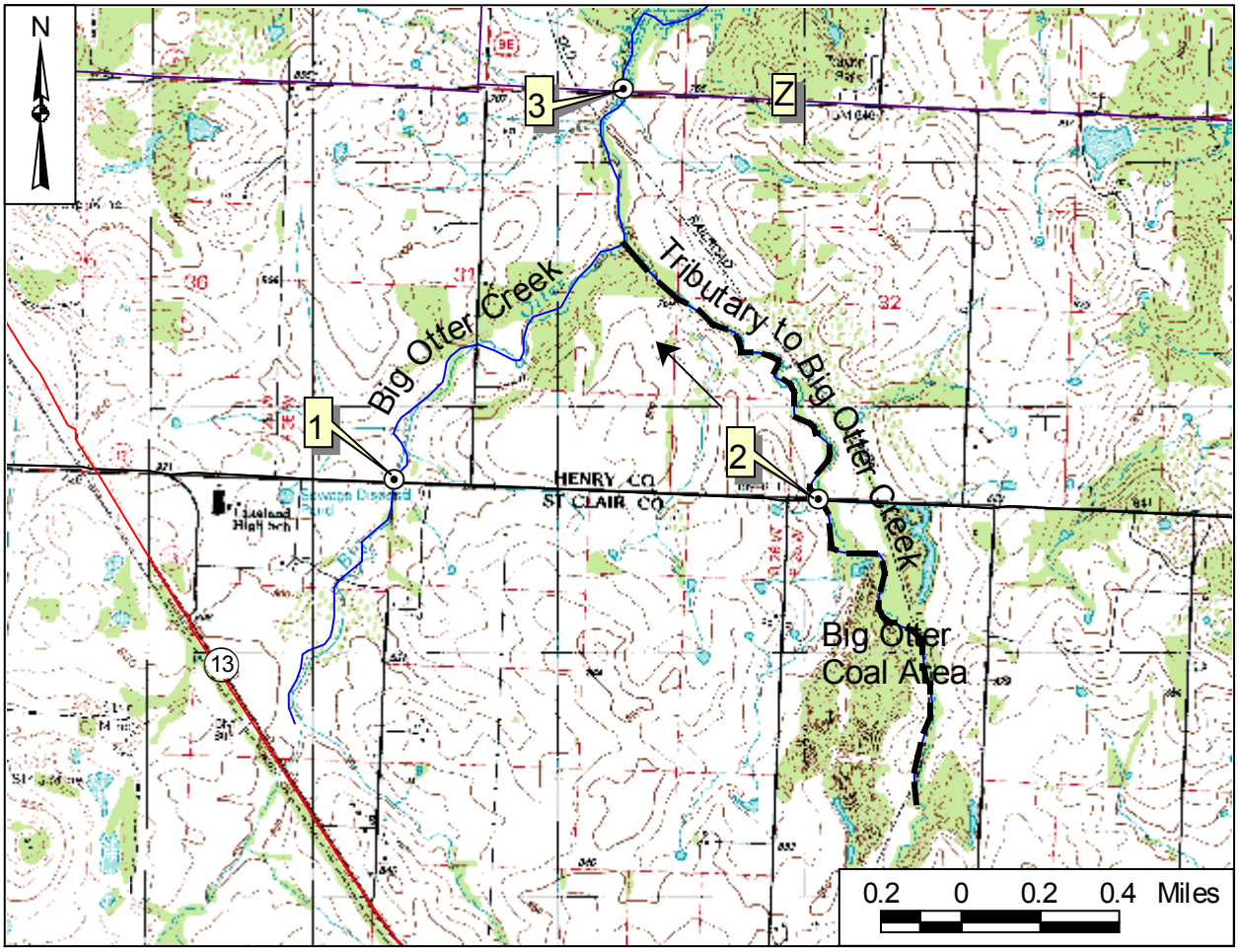
- Missouri Water Quality Standards for pH found in 10 CSR 20-7.031(3)(E) state: "Water contaminants shall not cause pH to be outside of the range of 6.5-9.0."

The Tributary to Big Otter Creek in northern St. Clair County and southern Henry County drains a 75 acre area of acidic coal wastes. Acid mine drainage was believed to affect all of Big Otter Creek between this coal waste area and Truman Reservoir. This resulted in numerous fish kills in the stream. The last mine-related fish kill in Big Otter Creek occurred in 1987. Landowners along the creek asserted that the poor water quality was affecting their livestock. The Department of Natural Resources reclaimed this area in 1998 at a cost of $955,964. A 25 acre lake provides water to dilute the acid mine drainage, and a small dilution pond was constructed to collect the numerous acid seeps. The area was revegetated with native and cool season grasses.

Sulfide minerals, commonly found in coal and the surrounding rock, oxidize when exposed to the air and are subsequently dissolved by surface flows and groundwater. This weathering process results in sulfuric acid forming and then showing up in the surface runoff and shallow groundwaters

that feed the creeks. Freshwater aquatic life cannot tolerate acidic (low pH) water. Water quality sampling in 1999 showed the Tributary to Big Otter still has water too acidic to meet state water quality standards. The limited data gathered to this point does not show an impact on Big Otter Creek downstream of the acidic tributary. It was thought, however, that during portions of the year, this stream would also be impaired, so it was added to the impaired waters list. Water quality monitoring of both Big Otter Creek and this tributary continues.

Map of Big Otter Creek and Tributary to Big Otter Creek Showing Sampling Locations



Impaired Segment Direction of Flow

Site Index
1 – Big Otter Creek
2 – Tributary to Big Otter Creek 0.5 mile below abandoned mine land
3 – Big Otter Creek at Highway Z

Field measurements of pH in Big Otter Creek and Tributary to Big Otter Creek

Date	Site 1	Site 2	Site 3
February, 1996	8.1	**3.1**	
October, 1997	7.0	**3.3**	7.3
June, 1999	---	**3.4**	7.1
August, 2000	---	**4.9**	7.3

Values in bold exceed state standards
Source: Missouri Department of Natural Resources

For more information call or write:
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P.O. Box 176, Jefferson City, MO 65102-0176
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